AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An ADIP demodulation apparatus, which is applied to an optical disk driver to generate ADIP information according to a wobble signal, the ADIP demodulation apparatus comprising:

a slicing unit for receiving the wobble signal and generating a wobble pulse by slicing the wobble signal;

a phase locked loop for generating a reference wobble signal with the same frequency and phase as the wobble pulse according to the wobble pulse;

a channel bit generator for generating a channel bit signal according to the reference wobble signal and the wobble pulse; and

a decoder for decoding to the ADIP information according to the channel bit signal;

~~wherein the channel bit generator generates a difference signal between the reference wobble signal and the wobble pulse and generates the channel bit signal according to the difference signal~~

wherein the channel bit generator produces the channel bit signal according to a difference signal generated by comparing the phase of the reference wobble signal with the phase of the wobble pulse.

2. (Original) The ADIP demodulation apparatus according to claim 1, wherein the channel bit generator comprises:

a bit comparator for receiving the wobble pulse and the reference wobble signal and generating the difference signal;

a counter for counting the width of high level of the difference signal corresponding to each wobble pulse using a counting clock and outputting a count value; and

a decision unit for comparing the count value with a threshold value and then outputting the channel bit signal.

3. (Original) The ADIP demodulation apparatus according to claim 2, further comprising a reference clock generator for generating the counting clock according to the wobble pulse.

4. (Currently Amended) The ADIP demodulation apparatus according to claim ~~3~~2, wherein the ADIP information is a sync signal when the channel bit signal sequence is a first sequence ~~11110000 or its similar sequence~~.

5. (Currently Amended) The ADIP demodulation apparatus according to claim 4, wherein the ADIP information is data 0 when the channel bit signal sequence is a second sequence ~~10000011 or its similar sequence~~.

6. (Currently Amended) The ADIP demodulation apparatus according to claim 5, wherein the ADIP information is data 1 when the channel bit signal sequence is a third sequence ~~10001100 or its similar sequence~~.

7. (Currently Amended) An ADIP demodulation method, which is applied to an optical disk driver to generate ADIP information according to a wobble signal, the ADIP demodulation

method comprising the steps of:

generating a wobble pulse by slicing the wobble signal;

generating a reference wobble signal with the same frequency and phase as the wobble pulse;

generating a difference signal by comparing the phase of the reference wobble signal with the phase of the wobble pulse;

generating a channel bit signal according to the difference to determine whether the channel bit signal is H or L; and

decoding the channel bit signal to generate the ADIP information.

8. (Currently Amended) The ADIP demodulation method according to claim 7, wherein the ADIP information is a sync data when the channel bit signal sequence is a first sequence ~~11110000 or its similar sequence~~.

9. (Currently Amended) The ADIP demodulation method according to claim 8, wherein the ADIP information is data 0 when the channel bit signal sequence is a second sequence ~~10000011 or its similar sequence~~.

10. (Currently Amended) The ADIP demodulation method according to claim 9, wherein the ADIP information is data 1 when the channel bit signal sequence is a third sequence ~~10001100 or its similar sequence~~.

11. (New) The ADIP demodulation method according to claim 7, wherein the difference signal is generated by executing an XOR operation between the reference wobble signal and the wobble pulse.

12. (New) The ADIP demodulation method according to claim 7, wherein the difference signal is generated by executing a minus operation between the reference wobble signal and the wobble pulse.

13. (New) The ADIP demodulation apparatus according to claim 1, wherein the difference signal is generated by executing an XOR operation between the reference wobble signal and the wobble pulse.

14. (New) The ADIP demodulation apparatus according to claim 1, wherein the difference signal is generated by executing minus operation between the reference wobble signal and the wobble pulse.

15. (New) The ADIP demodulation apparatus according to claim 4, wherein the first sequence is 11110000.

16. (New) The ADIP demodulation apparatus according to claim 5, wherein the second sequence is 10000011.

17. (New) The ADIP demodulation apparatus according to claim 6, wherein the third sequence is 10001100.

18. (New) The ADIP demodulation apparatus according to claim 8, wherein the first sequence is 11110000.

19. (New) The ADIP demodulation apparatus according to claim 9, wherein the second sequence is 10000011.

20. (New) The ADIP demodulation apparatus according to claim 10, wherein the third sequence is 10001100.